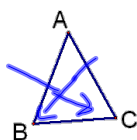
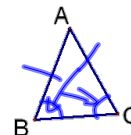


4.3 Isosceles and Equilateral Triangles

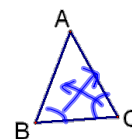


$\angle B$ and $\angle C$ are called base angles

Theorem 4.3--The Isosceles Triangle Theorem--If $AB = AC$, then $\angle C \cong \angle B$

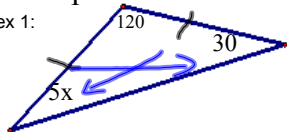


Theorem 4.4--The Converse of the Isosceles Triangle Theorem--If $\angle C \cong \angle B$, then $AB = AC$



Examples

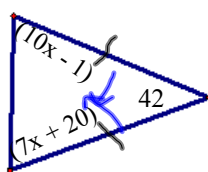
ex 1:



$$5x = 30$$

$$x = 6$$

ex 2:



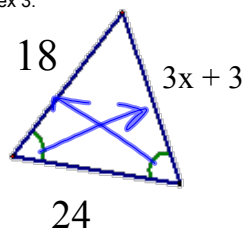
$$10x - 1 = 7x + 20$$

$$\begin{array}{r} 10x - 1 \\ -7x \quad -20 \\ \hline 3x - 1 = 20 \end{array}$$

$$3x = 21$$

$$x = 7$$

ex 3:

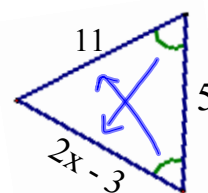


$$18 = 3x + 3$$

$$15 = 3x$$

$$5 = x$$

ex 4:

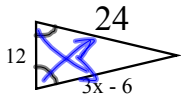


$$2x - 3 = 11$$

$$2x = 14$$

$$x = 7$$

ex 5:

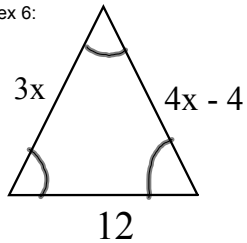


$$3x - 6 = 24$$

$$3x = 30$$

$$x = 10$$

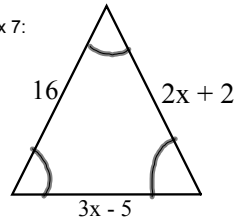
ex 6:



$$3x = 12$$

$$x = 4$$

ex 7:

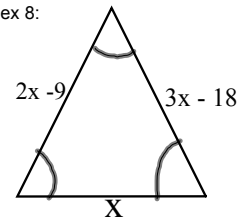


$$16 = 3x - 5$$

$$21 = 3x$$

$$7 = x$$

ex 8:

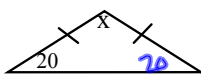


$$3x - 18 = 2x - 9$$

$$\begin{array}{r} -2x \\ 3x - 18 = 2x - 9 \\ -x - 18 = -9 \\ +18 \quad +18 \\ x = 9 \end{array}$$

ex 9:

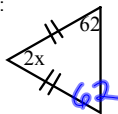
Fill in the blank.



$$x + 20 + 20 = 180$$

$$x = 140$$

ex 10:



$$2x + 62 + 62 = 180$$

$$2x + 124 = 180$$

$$2x = 56$$

$$x = 28$$

ex 11:

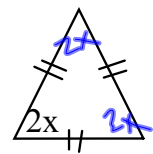


$$x + x + 3x = 180$$

$$5x = 180$$

$$x = 36$$

ex 12:



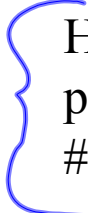
$$2x + 2x + 2x = 180$$

$$6x = 180$$

$$x = 30$$

Theorem 4.5--Equilateral Triangle Theorem--If a triangle is equilateral, then it is equiangular.

Theorem 4.6--Equiangular Triangle Theorem--If a triangle is equiangular, then it is equilateral.



HW
p188-189
#s 7-15, 17-25